PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

United States Patent and Trademark Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 02 August 1999 (02.08.99)	
International application No. PCT/NO98/00336	**Applicant's or agent's file reference** 130559/JGS/KR
International filing date (day/month/year) 11 November 1998 (11.11.98)	**Priority date** (day/month/year) 01 December 1997 (01.12.97)
Applicant BREIVIK, Øyvind et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

15 June 1999 (15.06.99)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Jean-Marie McAdams
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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
OS/BF/130559		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/NO98/00336	11.11.1998	01.12.1997
International Patent Classification (IPC) or national classification and IPC H 04 Q 3/00, H 04 L 12/66		
Applicant Telefonaktiebolaget LM Ericsson et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15.06.1999	29.03.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Telex 17978 PATOREG-S Facsimile No. 08-667 72 88	Authorized officer Jan Silfverling/CL Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/NO98/00336

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-9, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____,
pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-10, filed with the letter of 02.02.2000,
Nos. _____, filed with the letter of _____.

☒ the drawings, ~~sheets~~/fig 1-2, as originally filed,
~~sheets~~/fig _____, filed with the demand
~~sheets~~/fig _____, filed with the letter of _____,
~~sheets~~/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, ~~sheets~~/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELI[redacted]RY EXAMINATION REPORT

In[redacted]ional application No.
PCT/NO98/00336

V. Resoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations

The claimed invention relates to a method for improving the set-up of telephone-to-telephone calls. Generally, the present invention relates to Internet telephony (IN) and intelligent networks function. The main object of the invention is to provide a solution to the handling of call-establishment to the originating gateway.

The solution according to the invention comprises the Internet as a by-pass network and special telephone gateways forming bridges between the access network and said by-pass network. For the purpose of making the gateways transparent to the caller (A) the method allows the caller (A) in the same one-step procedure to dial a by-pass network IN-service prefix together with the number of the callee (B).

Documents cited in the international search report:

[D1] WO 9638018, A1
[D2] WO 9716007, A1
[D3] WO 9722210, A2
[D4] WO 9535632, A1

The objective of the invention described in D1 is a system, comprising an ISDN-network, having access through the intelligent network service switching point (SSP) to the services offered by the intelligent network service control point (SCP), a data network, in which at least one computer has a data network-address, and a gateway connecting the networks. The call can be connected to a telephone integrated to the computer, so that the data network-address used by the subscriber's computer and the subscriber's personal identifier are at first transferred to the gateway, which codes the data network-address.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

Thereafter the coded address, the gateway address and the subscriber's personal identifier are transmitted to the intelligent network and recorded in the database of the Service Data Point (SDP). The intelligent network has now the required data to create the speech connection between the mentioned subscriber and another subscriber (see abstract, page 3,line 33- page 5, line 35; page 12, line 28- page 13, line 5 and claims 1-13).

The invention in D2 relates to a telecommunication system. In particular, the invention relates to a telephone system operated via a computer network and to a procedure for its control. D2 makes it possible to achieve a telecommunication system in which calls are transmitted in a packet switching computer network from one computer to another, from a computer network to a public telephone network and vice versa. Furthermore, the invention makes it possible to add services based on an intelligent network to calls made over a computer network (see abstract; page 4, line 8- line 23; page 6, line 10- line 15; page 7, line 9- line 19; page 14, line 4- page 15, line 19).

In D3 there is described a method of providing services in a switched telecommunications system which involves providing at least one server connected to a computer network with several service resource items that are each associated with a respective predetermined code. The computer network is generally accessible to users of the telecommunications system but logically distinct from the latter. Upon the service control subsystem receiving a service request including a predetermined code, the service control subsystem uses the predetermined code to access the corresponding service resource item over the computer network. Preferably, at least one service resource item is service logic in which case the server executes the service logic and returns a response to the service control subsystem. The service control subsystem uses the response in providing service control (see page 15, line 14- page 16, line 13; figure 17).

D4 relates to a telecommunications network that has switching means (12) configured such that a request from a first network termination (10) to establish a communications link with a second network termination is directed to the service processing means (13) which directs the switching means (12) to establish the link.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

This enables the user terminal (10) to direct service and call set-up requests directly to the service processing means (13), the switch (12) not being involved with the call or service request until the service processing means (13) instructs it to participate, thereby minimising the establishment and allocation of resources until it is clear that such resources are required. A call can therefore be validated before any communications links are established, thus potentially offering economies in the operation of the system (see abstract; page 1,line 5- page 5, line 21 and claims 1- 12).

In D1 the A-subscriber dials at first the intelligent number and his own personal identifier, based on which the calling A-subscriber is identified, and thereafter the B-subscriber number, the call is routed to the B-subscriber number controlled by the intelligent number. In the claimed invention according to claim 1 the caller (A) dials a by-pass network IN-service prefix together with the number of the callee (B).
Both systems use the Internet as a data by-pass network and both systems are IN based (see D1, claims 3-6). It is though the main object of the claimed invention to handle the call set-up in one single phase making the gateway transparent and not in two phases as in D1. In each instance different information is stored in the IN (in D1 and D2: the IP address of a logged in PC telephone user; in the claimed invention: the address of the IP transit operator) and different information is sent from the IN to a gateway at a voice call (in D1 and D2 the IP address of the terminating PC user is sent, while in the claimed invention the telephone number of the terminating telephone user is sent).
To have a transparent gateway or make the gateway transparent is considered known in terms of adapting protocol (see D2, page 6, line 6- line 9 or D1, page 12, line 9- line 17). It is however, not known for the sort of service transparent gateway as addressed in the claimed invention.

According to the invention voice calls are initiated from traditional telephones, which is connected to a PSTN network. In the cited document D3, voice calls are initiated from a computer, which is connected to a data network. D3 uses a PSTN network for transporting the voice traffic.
In D4 there is described a function of how a voice call from a phone can be relayed to IN, but it is not described how this function is implemented. D4 is relevant, but the claimed invention is not considered depending on it.

.../...

Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

To summarize:
With reference to D1 or D2, the invention as claimed in claims 1- 10 is novel, and is considered to involve an inventive step, and to have industrial applicability.

Patent claims

(Amended 02.02.2000)

1. Method for setting up telephone-to-telephone calls using telephones connected to a PSTN/ISDN access network and using a separate network, especially Internet as a substantial by-pass network, special telephone gateways (GW) forming bridges between the access network and said by-pass network, and connections being established between the user telephones (A,B) and the gateways (GW) that bridge the call,
characterized in that the calling party (A) in a one-step procedure dials a by-pass network service prefix together with the number of the called party (B), i.e. a prefix + B-number, and more specifically an IN service prefix,
that said by-pass network service prefix is analysed to identify the relevant IN service for thereby routing the call to an IN node which can execute this IN service,
the IN service establishes the call to an appropriate gateway (GW), which means that the gateway is made service transparent to the calling party (A).

2. Method as claimed in claim 1,
characterized in that said IN service is arranged to find the most appropriate, e.g. the closest gateway (GW) by analyzing the caller's number (A), and/or possibly route the call to an alternative gateway if the closest is busy, etc.

3. Method as claimed in claim 2,
characterized in that after the IN service has established the call (A) to the most appropriate gateway (GW), (GWa) there is in the call set-up included the associated gateway number (GWa) as destination number, as well as the caller number (A) and the callee number (B).

4. Method as claimed in claim 3, c h a r a c t e r i z e d i n that address analysis is carried out in the gateway (GWa) to which the call has been routed.

5. Method as claimed in claim 4, c h a r a c t e r i z e d i n that number analysis is coupled with other services, for example short numbers for virtual network, and UPT.

6. Method as claimed in any of the preceding claims, c h a r a c t e r i z e d i n that a process for finding the most appropriate gateway for any terminating callee number (B) is carried out in the intelligent network (IN), i.e. by finding the E.164 number to an appropriate gateway (GWb), as well as the IP (Internet Protocol) address to the gateway (GWb).

7. Method as claimed in claim 6, c h a r a c t e r i z e d i n that there is maintained an updated list of gateways in the by-pass network, as well as a list of respective IP-addresses and the respective area code(s).

8. Method as claimed in any of the preceding claims, c h a r a c t e r i z e d i n that the area code of the number (B) of the callee is used to find the IP-address of the most appropriate callee gateway (GWb), for example the closest gateway thereof.

9. Method as claimed in any of the preceding claims, c h a r a c t e r i z e d i n that in the call setup from the intelligent network (IN) towards the access gateway (GWa) the IP-address of the terminal gateway (GWb) is included, so that the access gateway (GWa) can use the received terminal gateway (GWb) IP-address in the remaining call handling process.

10. Method as claimed in any of the preceding claims, characterized in that the most appropriate gateway (GWa) or gateways (GWa, GWb) is/are selected according to the quality of service (QoS) required, or possibly according to other criteria, for example tariff, availability, etc.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference OS/BF/130559	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/NO98/00336	International filing date *(day/month/year)* 11.11.1998	Priority date *(day/month/year)* 01.12.1997
International Patent Classification (IPC) or national classification and IPC7 H 04 Q 3/00, H 04 L 12/66		
Applicant Telefonaktiebolaget LM Ericsson et al		

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   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
15.06.1999	29.03.2000
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Telex 17978 PATOREG-S Facsimile No. 08-667 72 88	Authorized officer Jan Silfverling/CL Telephone No. 08-782 25 00

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/NO98/00336

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

☐ the international application as originally filed.

☒ the description, pages 1-9, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____,
pages _____, filed with the letter of _____.

☒ the claims, Nos. _____, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. 1-10, filed with the letter of 02.02.2000,
Nos. _____, filed with the letter of _____.

☒ the drawings, ~~sheets~~/fig 1-2, as originally filed,
~~sheets~~/fig _____, filed with the demand
~~sheets~~/fig _____, filed with the letter of _____,
~~sheets~~/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, ~~sheets~~/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/NO98/00336

V. Resoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

2. Citations and explanations

The claimed invention relates to a method for improving the set-up of telephone-to-telephone calls. Generally, the present invention relates to Internet telephony (IN) and intelligent networks function. The main object of the invention is to provide a solution to the handling of call-establishment to the originating gateway.

The solution according to the invention comprises the Internet as a by-pass network and special telephone gateways forming bridges between the access network and said by-pass network. For the purpose of making the gateways transparent to the caller (A) the method allows the caller (A) in the same one-step procedure to dial a by-pass network IN-service prefix together with the number of the callee (B).

Documents cited in the international search report:

[D1] WO 9638018, A1
[D2] WO 9716007, A1
[D3] WO 9722210, A2
[D4] WO 9535632, A1

The objective of the invention described in D1 is a system, comprising an ISDN-network, having access through the intelligent network service switching point (SSP) to the services offered by the intelligent network service control point (SCP), a data network, in which at least one computer has a data network-address, and a gateway connecting the networks. The call can be connected to a telephone integrated to the computer, so that the data network-address used by the subscriber's computer and the subscriber's personal identifier are at first transferred to the gateway, which codes the data network-address.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

Thereafter the coded address, the gateway address and the subscriber's personal identifier are transmitted to the intelligent network and recorded in the database of the Service Data Point (SDP). The intelligent network has now the required data to create the speech connection between the mentioned subscriber and another subscriber (see abstract, page 3,line 33- page 5, line 35; page 12, line 28- page 13, line 5 and claims 1-13).

The invention in D2 relates to a telecommunication system. In particular, the invention relates to a telephone system operated via a computer network and to a procedure for its control. D2 makes it possible to achieve a telecommunication system in which calls are transmitted in a packet switching computer network from one computer to another, from a computer network to a public telephone network and vice versa. Furthermore, the invention makes it possible to add services based on an intelligent network to calls made over a computer network (see abstract; page 4, line 8- line 23; page 6, line 10- line 15; page 7, line 9- line 19; page 14, line 4- page 15, line 19).

In D3 there is described a method of providing services in a switched telecommunications system which involves providing at least one server connected to a computer network with several service resource items that are each associated with a respective predetermined code. The computer network is generally accessible to users of the telecommunications system but logically distinct from the latter. Upon the service control subsystem receiving a service request including a predetermined code, the service control subsystem uses the predetermined code to access the corresponding service resource item over the computer network. Preferably, at least one service resource item is service logic in which case the server executes the service logic and returns a response to the service control subsystem. The service control subsystem uses the response in providing service control (see page 15, line 14- page 16, line 13; figure 17).

D4 relates to a telecommunications network that has switching means (12) configured such that a request from a first network termination (10) to establish a communications link with a second network termination is directed to the service processing means (13) which directs the switching means (12) to establish the link.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

This enables the user terminal (10) to direct service and call set-up requests directly to the service processing means (13), the switch (12) not being involved with the call or service request until the service processing means (13) instructs it to participate, thereby minimising the establishment and allocation of resources until it is clear that such resources are required. A call can therefore be validated before any communications links are established, thus potentially offering economies in the operation of the system (see abstract; page 1,line 5- page 5, line 21 and claims 1- 12).

In D1 the A-subscriber dials at first the intelligent number and his own personal identifier, based on which the calling A-subscriber is identified, and thereafter the B-subscriber number, the call is routed to the B-subscriber number controlled by the intelligent number. In the claimed invention according to claim 1 the caller (A) dials a by-pass network IN-service prefix together with the number of the callee (B).
Both systems use the Internet as a data by-pass network and both systems are IN based (see D1, claims 3-6). It is though the main object of the claimed invention to handle the call set-up in one single phase making the gateway transparent and not in two phases as in D1. In each instance different information is stored in the IN (in D1 and D2: the IP address of a logged in PC telephone user; in the claimed invention: the address of the IP transit operator) and different information is sent from the IN to a gateway at a voice call (in D1 and D2 the IP address of the terminating PC user is sent, while in the claimed invention the telephone number of the terminating telephone user is sent).
To have a transparent gateway or make the gateway transparent is considered known in terms of adapting protocol (see D2, page 6, line 6- line 9 or D1, page 12, line 9- line 17). It is however, not known for the sort of service transparent gateway as addressed in the claimed invention.

According to the invention voice calls are initiated from traditional telephones, which is connected to a PSTN network. In the cited document D3, voice calls are initiated from a computer, which is connected to a data network. D3 uses a PSTN network for transporting the voice traffic.
In D4 there is described a function of how a voice call from a phone can be relayed to IN, but it is not described how this function is implemented. D4 is relevant, but the claimed invention is not considered depending on it.

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Supplemental Box
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

To summarize:
With reference to D1 or D2, the invention as claimed in claims 1- 10 is novel, and is considered to involve an inventive step, and to have industrial applicability.

ETOP97028

Patent claims

1. Method for improving the setup of telephone-to-telephone calls using telephones connected to a PSTN/ISDN access network and using a separat network, especially Internet as a substantial by-pass network, special telephone gateways (GW) forming bridges between the access network and said by-pass network, and connections being established between the user telephones (A,B) and the gateways (GW) that bridge the call,
c h a r a c t e r i z e d i n that for the purpose of making the gateways transparent to the caller (A) the method allows the caller (A) in the same one-step procedure to dial a by-pass network service prefix together with the number of the callee (B), i.e. a prefix+B-nummer, and more specifically an IN-service prefix.

2. Method as claimed in claim 1,
c h a r a c t e r i z e d i n that said by-pass network service prefix, i.e. the IN service prefix is adapted to identify the relevant IN service for thereby routing the call to an IN node which can execute this IN service.

3. Method as claim in claim 1 or 2,
c h a r a c t e r i z e d i n that said IN service is arranged to find the most appropriate, e.g. the closest gateway (GW) by analyzing the caller's number (A), and/or possibly route the call to an alternative gateway if the closest is busy, etc.

4. Method as claimed in any of the preceding claims,
c h a r a c t e r i z e d i n that after the IN service has established the call (A) to the most appropriate gateway (GW), (GWa) there is in the call setup included the associated gateway number (GWa) as destination num-

ber, as well as the caller number (A) and the callee number (B).

5. Metod as claimed in any of the preceding claims, characterized in that the IN service establishes the call (A) to the most appropriate gateway (GWa) by coupling gateway funtionality with an intelligent network (IN).

6. Method as claimed in any of the preceding claims, characterized in that address analysis is carried out in the gateway (GWa) to which the call has been routed.

7. Method as claimed in any of the preceding claims, characterized in that value added funtionality is included by service logic means of the intelligent network (IN), for example the automatic selection of the most appropriate and/or available gateway.

8. Method as claimed in any of the preceding claims, characterized in that number analysis is coupled with other services, for example short numbers for virtual network, and UPT.

9. Method as claimed in any of the preceding claims, characterized in that the most appropriate gateway for any terminating callee number (B) is carried out in the intelligent network (IN), i.e. by finding the E.164 number to an appropriate gateway (GWa), as well as the IP (Internet Protocol) address to the gateway (GWb) closest to the callee (B).

10. Method as claimed in any of the preceding claims, characterized in that there is maintained an updated list of gateways in the by-pass network, i.e. the intelligent network (IN), as well as a list of respective IP-addresses and the respective area code(s).

11. Method as claimed in any of the preceding claims, characterized in that the area code of the number (B) of the callee is used to find the IP-address of the most appropriate callee gateway (GWb), for example the closest gateway thereof.

12. Method as claimed in any of the preceding claims, characterized in that in the call setup from the intelligent network (IN) towards the access gateway (GWa) the IP-address of the terminal gateway (GWb) is included, so that the access gateway (GWa) can use the received terminal gateway (GWb) IP-address in the remaining call handling process.

13. Method as claimed in any of the preceding claims, characterized in that the method allows any caller (A) to dial a called part (B) via an access network by only dialling once, i.e. a destination number.

14. Method as claimed in any of the preceding claims, characterized in that the most appropriate gateway (GWa) or gateways (GWa, GWb) is/are selected according to the quality of service (QoS) required, or possibly according to other criteria, for example tariff, availability, etc.